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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

September 11, 2003

Dr. Inés Triay, Manager
Carlsbad Field Office
Department of Energy
P.O. Box 3090
Carlsbad, New Mexico 88221-3090

Dr. Steven Warren, President
Washington TRU Solutions, LLC
P.O. Box 2078
Carlsbad, New Mexico 88221-5608

RE: FINAL DETERMINATION, CLASS 2 MODIFICATION REQUESTS
WIPP HAZARDOUS WASTE FACILITY PERMIT
EPA I.D. NUMBER NM4890139088

Dear Drs. Triay and Warren:

The New Mexico Environment Department (**NMED**) hereby approves certain Class 2 permit modification requests (**PMRs**) to the WIPP Hazardous Waste Facility Permit as submitted to the Hazardous Waste Bureau (**HWB**) in the following documents:

- Request for Class 2 Permit Modification (Combined PMR), Letter Dated 5/13/03, Rec'd 5/14/03
- Request for Class 2 Permit Modification (PCBs), Letter Dated 5/21/03, Rec'd 5/23/03

The following items were included in these two submittals:

1. Packaging-Specific Drum Age Criteria for New Approved Waste Containers
2. Removal of Booster Fans
3. LANL Seals Sources Waste Streams Headspace Gas Sampling and Analysis Requirements
4. Remove Formaldehyde as a Required Analytical Parameter for LANL
5. Add Hazardous Waste Numbers
6. Revise Polychlorinated Biphenyl (**PCB**) Prohibition

These Class 2 modifications were processed by NMED in accordance with the requirements specified in 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)). They were subject to a sixty (60) day public comment period, which ran from May 16 through July 14, 2003 for the

Combined PMR and from May 28 through July 28, 2003 for the PCB PMR. NMED received written comments from twelve individuals and organizations during the public comment period on the combined PMR and from ten individuals and organizations during the public comment period on the PCB PMR.

NMED hereby approves Items 2, 4, 5, and 6 as submitted. NMED denies Items 1 and 3 for the reasons specified below and in Attachment 1. The revised permit also includes all Class 1 permit modifications submitted since February 2003 with the exception of the February 27, 2003 Class 1* PMR for Change of Operation. The approved modifications are incorporated in the following attachment:

- Attachment 2 contains the redline/strikeout pages of the modified permit to help the reader rapidly identify each modification. Language deleted from the permit is ~~stricken out~~. Language added to the permit is highlighted in redline. Specific language changes imposed by NMED are not distinguished from language changes proposed in the modification request.

Also enclosed is a CD-ROM containing the modified files in WordPerfect 8 redline/strikeout format as well as files with markings and comments removed. An electronic version of the modified permit with markings removed has been publicly posted on the NMED WIPP Information Page at http://www.nmenv.state.nm.us/wipp/download.html.

20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(7)) provides several reasons for denying a Class 2 PMR, such as the modification request is incomplete; it does not comply with applicable requirements; or it fails to protect human health and the environment. Although NMED issued an administrative completeness determination for these PMRs on August 14, 2003, this determination did not consider the technical adequacy of the requests. Numerous public commentors identified significant technical concerns in the PMRs, as did NMED's technical review.

NMED was unable to approve the modifications "with changes" as allowed under 20.4.1.900 (incorporating 40 CFR §270.42(b)(6)(i)(A)) because none of the commentors, including the Permittees, proposed sufficiently detailed changes to rectify the technical inadequacies identified. Furthermore, NMED was unable to reclassify this modification request to follow the procedures for Class 3 modifications specified in 20.4.1.900 (incorporating 40 CFR §270.42(b)(6)(i)(C)) because the request was not approvable as submitted.

For purposes of version control, please note that NMED has established the date of these modified pages and attachments as September 11, 2003. The effective date of the permit modification approval is your date of receipt of this letter.

NMED will provide full response to all public comments under separate cover.

If you have any questions regarding this matter, please contact Steve Zappe at (505) 428-2517.

Sincerely,

Ron Curry
Cabinet Secretary

RC/soz

Attachment 1 – Basis for Denial of Specific Class 2 Modifications
Attachment 2 – redline/strikeout pages

cc w/o Attachment 2:
Charles Lundstrom, NMED
Sandra Martin, NMED HWB
John Kieling, NMED HWB
Steve Zappe, NMED HWB
Laurie King, EPA Region 6
Betsy Forinash, EPA ORIA

cc w/ Attachments
Chuck Noble, NMED OGC
Connie Walker, Trinity Engineering
File: Red WIPP '03

Attachment 1

Basis for Denial of Specific Class 2 Modifications

The Permittees submitted comments to NMED on the Combined PMR at the close of the public comment period on July 14, 2003. These comments were also provided to various stakeholders after the close of the public comment period. NMED received a letter from Don Hancock of Southwest Research and Information Center dated July 16, 2003 expressing concerns about the nature and extent of the comments submitted by the Permittees. In response to Mr. Hancock's letter, the Permittees submitted a letter to NMED dated July 22, 2003 defending the July 14 comments as appropriate in that they requested changes to the existing PMRs in response to issues raised by stakeholders during the public comment period and they were not overly extensive

NMED notes that the agency is compelled to give due and appropriate consideration to all comments received during a public comment period. NMED had also previously encouraged the Permittees to submit comments to address any concerns of which they become aware before the close of the comment period.

NMED has therefore examined the scope of commentary provided by both the Permittees and stakeholders, and has also performed a thorough technical analysis of the submission that goes beyond the initial completeness determination. As a result, NMED has determined that the modifications identified below are not approvable as Class 2 modifications at this time, and provides the following technical comments to assist the Permittees in developing revised PMRs if they intend to further pursue these modifications.

Item 1 - Packaging-Specific Drum Age Criteria for New Approved Waste Containers

NMED identified numerous technical issues with the drum age criteria (**DAC**) modification as submitted, but some of these issues were addressed by the Permittees' comments. However, the PMR was not approved because the Permittees failed to provide all technical information necessary to make a complete analysis. These issues are as follows:

1. The Permittees' assignment of the 55-gallon drum DAC value to 85 and 100-gallon drums for a given packaging configuration is not supported by information provided in the PMR. The Permittees did not account for the differences in the rigid poly liner surface area in the 85 and 100-gallon drums in their assumptions. The time necessary for the rigid poly liner within a container to reach equilibrium is a significant portion of the time needed to reach steady state equilibrium in a waste container. The Permittees did not indicate whether the rigid poly liner surface area is fixed or scalable based upon the container size. However, the Permittees' discussion of the irrelevance of void volume scalability implies that the rigid poly liner volume or surface area is not fixed, and hence should be considered in DAC calculations. The Permittees should instead prepare separate DAC tables for 55-gallon drums, 85-gallon drums, and 100-gallon drums.

2. NMED believes that there several technical issues with respect to DACs for compacted waste that still need to be addressed to ensure that the proposed DAC approach and values within the PMR with respect to compacted waste are adequate. These issues are:

   - **The assumption made by the Permittees that all compacted drums in a larger container would have the same source concentration (and hence the same rigid poly liner equilibrium concentration) is not fully supported by information provided by the Permittees.** A more conservative and more realistic assumption is that the headspace gas (**HSG**) concentrations within more than one compacted drum will not be similar. The Permittees' assumption that all compacted drums would have the same HSG and poly liner equilibrium concentrations resulted in a drum age equivalent to only the time required for the volatile organic compounds (**VOCs**) to mix within the void space of the larger container, and to reach equilibrium with either the inner or outer drum filter (depending upon whether an inner drum lid was used). However, the Permittees' calculations did not account for the additional time needed for the exposed poly liners in the compacted drums to reach equilibrium with each other once they are placed in the larger container. For modeling purposes, the Permittees should assume that only one of the compacted drums has the maximum input source concentration (1000 ppmv) specified in the VDRUM model and that the remaining compacted drums do not have an appreciable HSG concentration for any of the VOCs. This would create a modeling situation analogous to one in which the rigid poly liners of the compacted drums {with no appreciable HSG concentration} would be the functional equivalent of a zero concentration rigid poly liner in the larger container. Note that this also requires information on the likely rigid poly liner surface area in a compacted drum.
   - **The Permittees did not fully support the adequacy of the VDRUM model to calculate appropriate DAC values for wastes with multiple VOC sources or sources that do not have constant VOC concentrations, as would be encountered in the compacted drum wastes.** The Permittees calculated drum ages in the PMR for 85 and 100 gallon drums under packaging scenario 7 that are based upon the assumption that all compacted wastes placed into a larger container are already at equilibrium and that each compacted drum is considered to be a single and constant 1000 ppmv VOC source. The Permittees then used the HSG concentration of 1000 ppmv from the compacted drums as the input into the computer code VDRUM for the "initial source concentration." The VDRUM software was then used to calculate the time the drum must wait prior to headspace gas sampling. However, NMED questions whether this simplifying assumption is appropriate because the assumption of equivalent VOC HSG concentrations within each compacted drum is not well supported, and therefore these compacted drums and their exposed poly liners would not be in equilibrium

with each other when placed together in a container. The Permittees did not adequately account for the likelihood that poly liners with higher equilibrium concentrations would act as additional and non-constant VOC sources until a new equilibrium concentration is reached within all the compacted drum poly liners. Based upon the stated working assumptions of the VDRUM model, it is unclear if the VDRUM model can adequately support scenarios where there are multiple VOC sources with different and non-constant VOC concentrations DOE should consider these issues, and determine whether the VDRUM software is adequate for determining DACs when multiple sources or sources with non-constant concentrations may be present.

- **The Permittees did not provide adequate information to support their assumption that compacted drums would approximate a constant VOC source in the VDRUM model.** The Permittees assume that a compacted drum acts as a VOC source without any layers of internal confinement that would mitigate or otherwise affect the release of VOCs, presumably because the Permittees assume all layers of confinement within the drum were breached during the compaction process. However, the Permittees did not provide sufficient information regarding the compaction process to ensure that all layers of confinement would in fact be breached and, consequently, that the DAC can be calculated assuming no layers of confinement. The Permittees must provide more information regarding the extent to which layers of confinement will be breached during the compaction process.
- **It appears as though separate DAC values might be warranted for drums containing compacted drums and for containers that do not have compacted drums.** For example, based upon the information provided in the PMR, scenario 7 is the preferred packaging configuration for containers containing compacted 55-gallon drums. Packaging configuration 3 is referred to as the default packaging configuration for compacted waste drums in the event that packaging configuration 7 cannot be confirmed. However, the appropriateness of using packaging configuration 3 for compacted drums has not been adequately justified. The DAC for compacted drum waste under packaging configuration 3 would likely be longer than that for uncompacted drums because the additional rigid poly liner surface area from the zero concentration rigid poly liners from compacted drums must be factored into the DAC calculation. Based on this concern, the Permittees should evaluate whether separate DAC tables for compacted container wastes are required.
- **In the event that the Permittees cannot adequately describe or characterize the behavior of VOCs from compacted drums, the Permittees should perform experimental tests on compacted test drums with known concentrations to confirm assumptions that the compacted drum will act as a steady VOC source.** The Permittees specifically must be able to demonstrate whether the compacted drum will behave like a steady source with no layers of confinement, or whether the compacted drum will instead not exhibit steady source behavior because of impingement of the

actual waste sources in compacted materials or because of other physical manifestations of the compaction process.

Item 2 - LANL Seals Sources Waste Streams Headspace Gas Sampling and Analysis Requirements

1. NMED believes in all likelihood that the sealed sources described in the PMR do not contain hazardous wastes, but such information that is unilaterally supportable or defensible was not provided as part of the PMR. NMED must be provided sufficient information to evaluate the request and to address comments made by the general public; this was not the case.

2. NMED believes this PMR proposed to add an unnecessary degree of complexity to the permit by identifying a single, limited category of waste (i.e., LANL sealed sources) that would be exempt from all HSG sampling and analysis requirements. Also, the reliance on and inclusion of regulatory requirements from several other Agencies into the permit, through our experience, can complicate the compliance process. NMED is aware that the Permittees have a long-term goal to eliminate HSG sampling and analysis requirements for all TRU mixed waste containers. However, until a modification request to this end is submitted by the Permittees, NMED believes an efficient alternative would be to seek a modification to the previously approved condition specified in Permit Attachment B, Section B-3a(1)(i), regarding reduced sampling requirements for wastes with no VOC-related hazardous waste codes. Although this permit condition currently applies only to homogeneous solid or soil/gravel waste streams, the subject waste stream in this PMR appears amenable to inclusion in this section due to the reliance upon acceptable knowledge to justify the absence of VOCs. NMED encourages the Permittees to submit a revised PMR for LANL sealed sources seeking a minor modification of this condition in the permit.

Attachment 2

Redline/Strikeout Pages

The Permittees will only allow generators to ship those TRU mixed waste streams with EPA hazardous waste codes listed on the Permittees' RCRA Part A Permit Application (Permit Attachment O). Some of the waste may also be identified by unique state hazardous waste codes. These wastes are acceptable at WIPP as long as the TSDF-WAC are met. The Permittees will perform characterization of all waste streams as required by this WAP. If during the characterization process, new EPA hazardous waste codes are identified, those wastes will be prohibited for disposal at the WIPP facility until a permit modification has been submitted to and approved by the NMED for these new EPA hazardous waste codes. Similar waste streams at other generator/storage sites will be examined by the Permittees to ensure that the newly identified EPA hazardous waste codes do not apply to those similar waste streams. If the other waste streams also require new EPA hazardous waste code, shipment of these similar waste streams will also be prohibited for disposal until a permit modification has been submitted to and approved by NMED.

B-1c Waste Prohibited at the WIPP Facility

The following TRU mixed waste are prohibited at the WIPP facility:

- liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container (e.g., 55 gallon drum or standard waste box) may not exceed 1 percent volume of that container. Payload containers with U134 waste shall have no detectable liquid)
- non-radionuclide pyrophoric materials, such as elemental potassium
- hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)
- wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes
- wastes containing explosives or compressed gases
- wastes with polychlorinated biphenyls (**PCBs**) ~~concentrations equal to or greater than 50 parts per million~~ not authorized under an EPA PCB waste disposal authorization
- wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)
- RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)
- any waste container that does not have VOC concentration values reported for the headspace

identified compounds (**TICs**) in the analytical batch data report and shall be added to the target analyte list if detected in a given waste stream, if they appear in the 20.4.1.200 NMAC (incorporating 40 CFR §261) Appendix VIII, and if they are reported in 25% of the waste containers sampled from a given waste stream. The headspace gas analysis method Quality Assurance Objectives (**QAOs**) are specified in Permit Attachment B3.

B-3a(1)(~~i~~ii) Reduced Sampling Requirements for Homogeneous Solid or Soil/Gravel Waste Streams with no VOC-Related Hazardous Waste Codes

Headspace gas sampling of homogeneous solid and soil/gravel wastes that have no VOC-related hazardous waste codes assigned may qualify for reduced headspace sampling if they meet the following criteria:

- The waste stream or waste stream lot must consist of more than 10 containers.
- The waste stream must be a homogeneous solid or soil/gravel waste stream that has no VOC-related hazardous waste codes assigned to it.
- The results of the solid sampling and analysis must confirm that no VOC-related hazardous waste codes should be assigned to the waste stream.

If a waste stream meets these conditions for reduced headspace gas sampling, generator/storage sites may choose to randomly select containers for headspace gas sampling and analysis using the statistical approach in Permit Attachment B2, Section B2-2b.

B-3a(1)(ii) Reduced Sampling Requirements for Thermally Treated Waste Streams

Headspace gas sampling of ~~homogeneous solid and soil/gravel~~ wastes that have undergone high-temperature thermal processes may qualify for reduced headspace sampling if they meet the following criteria:

- The waste stream or waste stream lot must consist of more than 10 containers.
- The waste stream must have either been generated using a high-temperature thermal process or been subjected to a high-temperature thermal process after generation that resulted in the reduction of matrix-related VOCs in the headspace to concentrations below the PRQLs in Permit Attachment B3, Table B3-2.
- The site must have documentation demonstrating that high-temperature thermal processes were used.

If a waste stream meets these conditions for reduced headspace gas sampling, generator/storage sites may choose to randomly select containers for headspace gas sampling and analysis using the statistical approach in Permit Attachment B2, Section B2-2b.

identified compounds (**TICs**) in the analytical batch data report and shall be added to the target analyte list if detected in a given waste stream, if they appear in the 20.4.1.200 NMAC (incorporating 40 CFR §261) Appendix VIII, and if they are reported in 25% of the waste containers sampled from a given waste stream. The headspace gas analysis method Quality Assurance Objectives (**QAOs**) are specified in Permit Attachment B3.

B-3a(1)(~~i~~i) Reduced Sampling Requirements for Homogeneous Solid or Soil/Gravel Waste Streams with no VOC-Related Hazardous Waste Codes

Headspace gas sampling of homogeneous solid and soil/gravel wastes that have no VOC-related hazardous waste codes assigned may qualify for reduced headspace sampling if they meet the following criteria:

- The waste stream or waste stream lot must consist of more than 10 containers.
- The waste stream must be a homogeneous solid or soil/gravel waste stream that has no VOC-related hazardous waste codes assigned to it.
- The results of the solid sampling and analysis must confirm that no VOC-related hazardous waste codes should be assigned to the waste stream.

If a waste stream meets these conditions for reduced headspace gas sampling, generator/storage sites may choose to randomly select containers for headspace gas sampling and analysis using the statistical approach in Permit Attachment B2, Section B2-2b.

B-3a(1)(ii) Reduced Sampling Requirements for Thermally Treated Waste Streams

Headspace gas sampling of ~~homogeneous solid and soil/gravel~~ wastes that have undergone high-temperature thermal processes may qualify for reduced headspace sampling if they meet the following criteria:

- The waste stream or waste stream lot must consist of more than 10 containers.
- The waste stream must have either been generated using a high-temperature thermal process or been subjected to a high-temperature thermal process after generation that resulted in the reduction of matrix-related VOCs in the headspace to concentrations below the PRQLs in Permit Attachment B3, Table B3-2.
- The site must have documentation demonstrating that high-temperature thermal processes were used.

If a waste stream meets these conditions for reduced headspace gas sampling, generator/storage sites may choose to randomly select containers for headspace gas sampling and analysis using the statistical approach in Permit Attachment B2, Section B2-2b.

B-3a(2) Homogeneous Waste Sampling and Analysis

Sampling of homogeneous and soil/gravel wastes shall result in the collection of a sample that is used to confirm hazardous waste code assignment by acceptable knowledge. Sampling is accomplished through core or other EPA approved sampling, which is described in Permit Attachment B1.For those waste streams defined as Summary Category Groups S3000 or S4000 on page B-3, debris that may also be present within these wastes need not be sampled. The waste containers for sampling and analysis are to be selected randomly from the population of containers for the waste stream. The random selection methodology is specified in Permit Attachment B2.

Totals or TCLP analyses for ~~PCBs,~~ VOCs, SVOCs, and RCRA-regulated metals are used to determine waste parameters in soils/gravels and solids that may be important to the performance within the disposal system (Tables B-4 and B-5). To determine if a waste exhibits a toxicity characteristic for compounds specified in 20.4.1.200 NMAC (incorporating 40 CFR §261, Subpart C), TCLP may be used instead of total analyses. The generator will use the results from these analyses to determine if a waste exhibits a toxicity characteristic. The mean concentration of toxicity characteristic contaminants are calculated for each waste stream such that it can be reported with an upper 90 percent confidence limit (**UCL_{90}**). The UCL_{90} values for the mean measured contaminant concentrations in a waste stream will be compared to the specified regulatory levels in 20.4.1.200 NMAC (incorporating 40 CFR 261 Subpart C), expressed as total/TCLP values, to determine if the waste stream exhibits a toxicity characteristic. A comparison of total analyses and TCLP analyses is presented in Appendix C3 of the WIPP RCRA Part B Permit Application (DOE, 1997), and a discussion of the UCL_{90} is included in Permit Attachment B2. If toxicity characteristic (**TC**) wastes are identified, these will be compared to those determined by acceptable knowledge and TC waste codes will be revised, as warranted. Refer to Permit Attachment B4 for additional clarification regarding hazardous waste code assignment and homogeneous solid and soil/gravel analytical results.

B-3a(3) Laboratory Qualification

The Permittees will ensure that generator/storage sites conduct analyses using laboratories that are qualified through participation in the Performance Demonstration Program (DOE, 1995c, d). Required QAOs are specified in Permit Attachment B3. In addition, methods and supporting performance data demonstrating QAO compliance shall be ensured by the Permittees during the annual certification audit.

Analytical methods used by the laboratories shall: 1) satisfy all of the appropriate QAOs, and 2) be implemented through laboratory-documented standard operating procedures. These analytical QAOs are discussed in detail in Permit Attachment B3.

B-3b Acceptable Knowledge

Acceptable knowledge (**AK**) is used in TRU mixed waste characterization activities in three ways:

- To delineate TRU mixed waste streams

repackaged retrievably stored waste) uses a second operator, who is equally trained to the requirements stipulated in Permit Attachment B1, to provide additional verification by reviewing the contents of the waste container to ensure correct reporting. If the second operator cannot provide concurrence, corrective actions will be taken as specified in Permit Attachment B3. The subsequent waste characterization activities depend on the assigned Summary Category Group, since waste within the Homogeneous Solids and Soils/Gravel Summary Category Groups will be characterized using different techniques than the waste in the Debris Waste Summary Category Group. The packaging configuration, type and number of filters, and rigid liner vent hole presence and diameter necessary to determine the appropriate drum age criteria (**DAC**) in accordance with Permit Attachment B1, Section B1-1, shall be documented as part of the characterization information collected during the packaging of newly generated waste or repackaging of retrievably stored waste. If retrievably stored waste is characterized in the same manner as newly generated waste due to unacceptable AK (see Section B-1a), the option to perform radiography in lieu of or in combination with the VE technique does not apply.

All containers of newly generated waste or newly generated waste containers randomly selected from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) will undergo headspace-gas analysis for VOC concentrations prior to shipment. If the Permittees believe the frequency can be reduced in the future based on trends in analytical results, they may provide technical arguments for such a reduction and request a permit modification from NMED. The headspace-gas sampling method is provided in Permit Attachment B1. Headspace gas data will be used to confirm acceptable knowledge waste characterization, as specified in Permit Attachment B4.

B-3d(1)(a) Sampling of Newly Generated Homogeneous Solids

Newly generated mixed waste streams of homogeneous solids will be randomly sampled a minimum of once per year for total ~~PCBs,~~ VOCs, SVOCs and metals. An initial ten-sample set, however, will be collected to develop the baseline control chart. Sampling frequency of once per year is only allowed if a process has operated within procedurally established bounds without any process changes or fluctuations which would result in either a new waste stream or the identification of a new hazardous waste constituent in that waste stream. Otherwise, the waste shall be considered as process batches and each batch will undergo sampling and analysis. Process changes and process fluctuations will be determined using statistical process control charting techniques; these techniques require the ten-sample baseline and historical data for determining limits for indicator species and subsequent periodic sampling to assess process behavior relative to historical limits. If the limits are exceeded, the waste stream shall be recharacterized, and the characterization shall be performed according to procedures required for retrievably stored waste (i.e., waste sampling frequency will be increased). The process behind this control charting technique is described in Permit Attachment B2.

Also, as another control of waste generated from a particular process, the bounds for a waste generating process will be established by specific written procedures for that process. Examples of parameter bounds that could affect a waste generated by a process are volumes of input material, change in the input material, and any other changes that would change the output of that process.

TABLE B-1
SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS FOR TRANSURANIC MIXED WASTE [a]

Parameter	Techniques and Procedure
Total Semivolatile Organic Compounds Cresols 1,4-Dichlorobenzene[e] 1,2-Dichlorobenzene[e] 2,4-Dinitrophenol 2,4-Dinitrotoluene Hexachlorobenzene Hexachloroethane Nitrobenzene ~~Polychlorinated biphenyls~~ Pentachlorophenol Pyridine[e]	**Total Semivolatile Organic Compound Analysis** TCLP, SW-846 1311 GC/MS, SW-846 8250 or 8270 ~~GC/ECD for PCBs, SW-846 8082~~ (Permit Attachment B3) Acceptable Knowledge for Summary Category S5000 (Debris Wastes)
Total Metals Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc	**Total Metals Analysis** TCLP, SW-846 1311 ICP- MS, SW-846 6020 , ICP Emission Spectroscopy, SW-846 6010 Atomic Absorption Spectroscopy , SW-846 7000 (Permit Attachment B3) Acceptable Knowledge for Summary Category S5000 (Debris Wastes)

[a] Permit Attachment B
[b] Required only for homogeneous solids and soil/gravel waste from ~~Los Alamos National Laboratory and~~ Savannah River Site.
[c] Required only for homogeneous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.
[d] Can also be analyzed as a semi-volatile organic compound.
[e] Can also be analyzed as a volatile organic compound.

TABLE B-3
HEADSPACE TARGET ANALYTE LIST AND METHODS

Parameter	EPA Specified Analytical Method
Benzene Bromoform Carbon tetrachloride Chlorobenzene Chloroform 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethylene (cis)-1,2-Dichloroethylene (trans)-1,2-Dichloroethylene Ethyl benzene Ethyl ether Formaldehyde[b] Hydrazine[c] Methylene chloride 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene 1,1,1-Trichloroethane Trichloroethylene 1,1,2-Trichloro-1,2,2-trifluoroethane Xylenes	EPA: Modified TO-14[a]; Modified 8240/8260 EPA - Approved FTIRS
Acetone Butanol Methanol Methyl ethyl ketone Methyl isobutyl ketone	EPA: Modified TO-14[a]; Modified 8240/8260 Method 8015 EPA - Approved FTIRS

[a] U.S. Environmental Protection Agency (EPA), 1988, "Compendium Method TO-14, the Determination of Volatile Organic Compounds (VOC) in Ambient Air Using SUMMA® Passivated Canister Sampling and Gas Chromatographic Analysis," in Compendium of Methods for the Determination of Toxic Organic Compounds on Ambient Air. Research Triangle Park, North Carolina, Quality Assurance Division, Monitoring System Laboratory, U.S. EPA. The most current revision of the specified methods may be used.

[b] Required only for containers of homogeneous solids and soil/gravel waste from ~~Los Alamos National Laboratory and~~ Savannah River Site.

[c] Required only for containers of homogeneous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

TABLE B-4
REQUIRED ORGANIC ANALYSES AND TEST METHODS ORGANIZED BY ORGANIC ANALYTICAL GROUPS

Organic Analytical Group	Required Organic Analyses	EPA Specified Analytical Method [a,ed]
Nonhalogenated Volatile Organic Compounds (VOCs)	Acetone Benzene n-Butanol Carbon disulfide Ethyl benzene Ethyl ether Formaldehyde Hydrazine[b] Isobutanol Methanol Methyl ethyl ketone Toluene Xylenes	8015 8240 8260
Halogenated VOCs	Bromoform Carbon tetrachloride Chlorobenzene Chloroform 1,2-Dichloroethane 1,1-Dichloroethylene (trans)-1,2-Dichloroethylene Methylene chloride 1,1,2,2-Tetrachloroethane Tetrachloroethylene 1,1,2-Trichloroethane 1,1,1-Trichloroethane Trichloroethylene Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-trifluoroethane Vinyl Chloride	8015 8240 8260
Semivolatile Organic Compounds (SVOCs)	Cresols (o, m, p) 1,2-Dichlorobenzene[c] 1,4-Dichlorobenzene[c] 2,4-Dinitrophenol 2,4-Dinitrotoluene Hexachlorobenzene Hexachloroethane Nitrobenzene ~~Polychlorinated biphenyls (PCB)~~[d] Pentachlorophenol Pyridine[c]	8250 8270 ~~8082 (for PCBs only)~~

TABLE B-4 (CONTINUED)
REQUIRED ORGANIC ANALYSES AND TEST METHODS
ORGANIZED BY ORGANIC ANALYTICAL GROUPS

[a] U.S. Environmental Protection Agency (EPA), 1996, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Third Edition.
[b] Generator/Storage Sites will have to develop an analytical method for hydrazine. This method will be submitted to the Permittees for approval.
[c] These compounds may also be analyzed as VOCs by SW-846 Methods 8240 and 8260.
[d] ~~Transformer oils containing PCBs have been identified in a limited number of waste streams included in the organic sludges waste matrix code. Therefore, only waste streams included in the solidified organics final waste form shall be analyzed for PCBs.~~
[e] TCLP (SW-846 1311) may be used to determine if compounds in 20.4.1.200 NMAC (incorporating 40 CFR 261, Subpart C) exhibit a toxicity characteristic.

TABLE B-8
WIPP WASTE INFORMATION SYSTEM DATA FIELDS[a]

Characterization Module Data Fields [b]	
Container ID [c]	Total VOC Sample Date
Generator EPA ID	Total VOC Analysis Date
Generator Address	Total VOC Analyte Name [d]
Generator Name	Total VOC Analyte Concentration [d]
Generator Contact	Total Metal Sample Date
Hazardous Code	Total Metal Analysis Date
Headspace Gas Sample Date	Total Metal Analyte Name [d]
Headspace Gas Analysis Date	Total Metal Analyte Concentration [d]
Layers of Packaging	Semi-VOC Sample Date
Liner Exists	Semi-VOC Analysis Date
Liner Hole Size	Semi-VOC Analyte Name [d]
Filter Model	Semi-VOC Concentration [d]
Number of Filters Installed	Transporter EPA ID
Headspace Gas Analyte [d]	Transporter Name
Headspace Gas Concentration [d]	Visual Exam Container [e]
Headspace Gas Char. Method [d]	Waste Material Parameter [d]
Total VOC Char. Method [d]	Waste Material Weight [d]
Total Metals Char. Method [d]	Waste Matrix Code
Total Semi-VOC Char. Method [d]	Waste Matrix Code Group
Item Description Code	Waste Stream Profile Number
Haz. Manifest Number	
NDE Complete [e]	
~~PCB Concentration~~	

Certification Module Data Fields	
Container ID [c]	Handling Code
Container type	
Container Weight	
Contact Dose Rate	
Container Certification date	
Container Closure Date	

Transportation Data Module	
Contact Handled Package Number	Ship Date
Assembly Number[f]	Receive Date
Container IDs [c,d]	
ICV Closure Date	

be left in the coring tool and the coring tool shall be capped at each end, or 2) the coring tool shall remain in the waste container with the air-lock mechanism attached.

- Samples of homogenous solids and soil/gravel for VOC analyses shall be collected prior to extruding the core from the liner. These samples may be collected by collecting a single sample from the representative subsection of the core, or three sub-samples may be collected from the vertical core to form a single 15-gram composite sample. Smaller sample sizes may be used if method PRQL requirements are met for all analytes. The sampling locations shall be randomly selected. If a single sample is used, the representative subsection is chosen by randomly selecting a location along the portion of the core (i.e. core length). If the three sub-sample method is used, the sampling locations shall be randomly selected within three equal-length subsections of the core along the long axis of the liner and access to the waste shall be gained by making a perpendicular cut through the liner and the core. The Permittees shall require sites to develop documented procedures to select, and record the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. The procedures used to select the random sampling locations will be subject to review as part of annual audits by the Permittees. A sampling device such as the metal coring cylinder described in EPA's SW-846 Manual (1996), or equivalent, shall be immediately used to collect the sample once the core has been exposed to air. Immediately after sample collection, the sample shall be extruded into 40-ml volatile organics analysis (**VOA**) vials (or other containers specified in appropriate SW-846 methods), the top rim of the vial visually inspected and wiped clean of any waste residue, and the vial cap secured. Sample handling requirements are outlined in Table B1-4. Additional guidance for this type of sampling can be found in SW-846 (EPA 1996).

- Samples of the homogenous solids and soil/gravel for semi-volatile organic compound~~, polychlorinated biphenyls,~~ and metals analyses shall be collected. These samples may be collected from the same sub-sample locations and in the same manner as the sample collected for VOC analysis, or they may be collected by splitting or compositing the representative subsection of the core. The representative subsection is chosen by randomly selecting a location along the portion of the core (i.e. core length). The Permittees shall require sites to develop documented procedures to select, and record the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. The procedures used to select the random sampling locations will be subject to review as part of annual audits by the Permittees. Guidance for splitting and compositing solid materials can be found in SW-846 (EPA 1996). All surfaces of the sampling tools that have the potential to come into contact with the sample shall be constructed of materials unlikely to affect the composition or concentrations of target analytes in the waste (e.g., Teflon®). In addition, all surfaces that have the potential to come into contact with core sample media shall either be disposed or decontaminated

TABLE B1-4
SAMPLE HANDLING REQUIREMENTS FOR HOMOGENEOUS SOLIDS AND SOIL/GRAVEL

Parameter	Suggested Quantity[a]	Required Preservative	Suggested Container	Maximum Holding Time[b]
VOCs	15 grams	Cool to 4°C	Glass Vial[c]	14 Days Prep/ 40 Days Analyze[d]
SVOCs	50 grams	Cool to 4°C	Glass Jar[e]	14 Days Prep/ 40 Days Analyze[d]
~~Polychlorinated Biphenyls (PCBs)[f]~~	~~50 grams~~	~~Cool to 4°C~~	~~Glass Jar[e]~~	~~14 Days Prep/ 40 Days Analyze[d]~~
Metals	10 grams	Cool to 4°C	Plastic Jar[e,f]	180 Days[h,g]

[a] Quantity may be increased or decreased according to the requirements of the analytical laboratory, as long as the QAOs are met.
[b] Holding time begins at sample collection (holding times are consistent with SW-846 requirements).
[c] 40-ml VOA vial or other appropriate containers shall have an airtight cap.
[d] 40-day holding time allowable only for methanol extract - 14-day holding time for non-extracted VOCs.
[e] Appropriate containers should be used and should have Teflon® lined caps.
[f] ~~Analysis for PCBs is required only for waste streams in Waste Matrix Code S3220 (organics sludges).~~
[g] ~~Polyethylene~~ or polypropylene preferred, glass jar is allowable.
[h,g] Holding time for mercury analysis is 28 days.

Note: Preservation requirements in the most recent version of SW-846 may be used if appropriate.

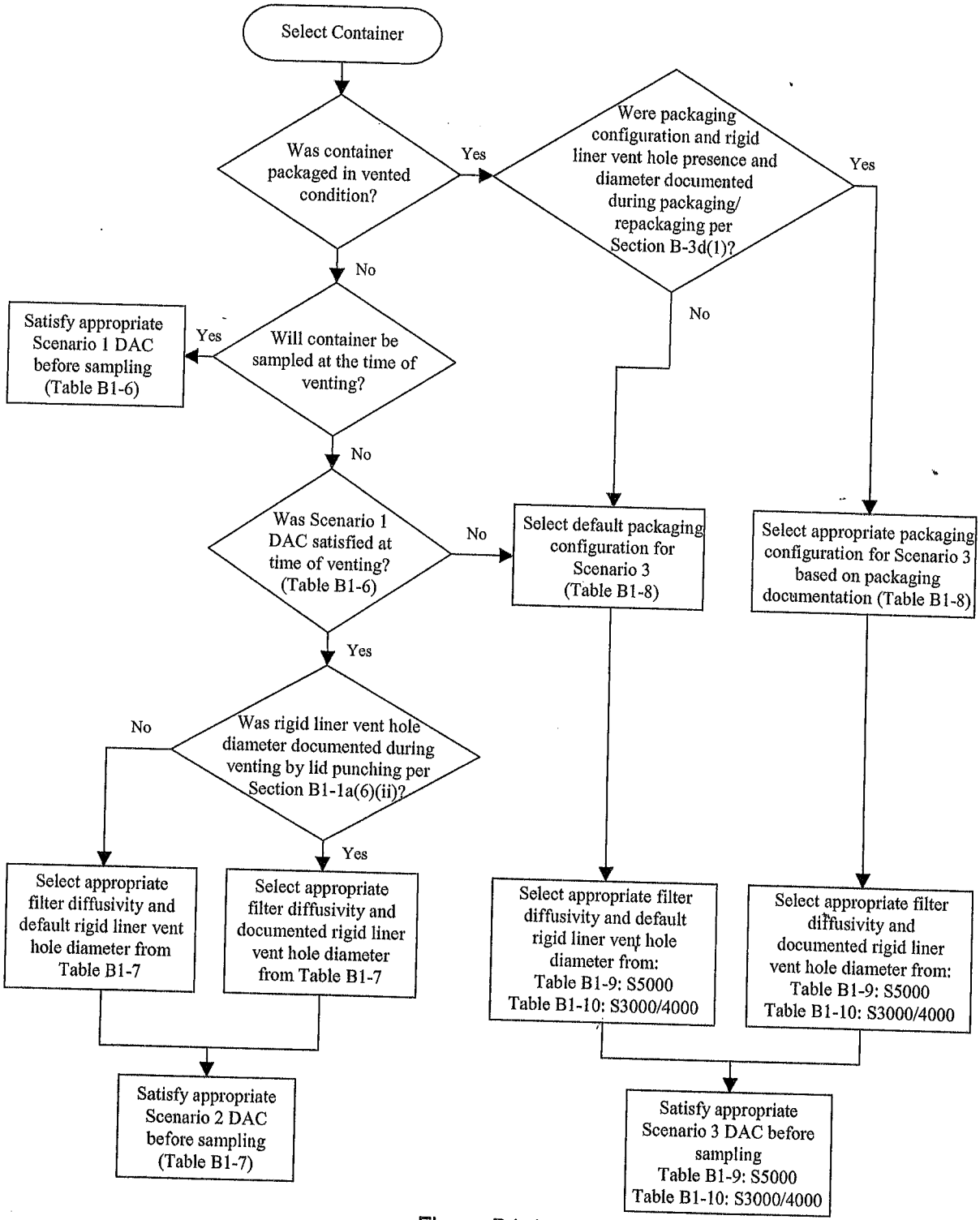

Figure B1-1
Headspace Gas Drum Age Criteria Sampling Scenario Selection Process

TABLE B3-2
GAS VOLATILE ORGANIC COMPOUNDS TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Compound	CAS Number	Precision[a] (%RSD or RPD)	Accuracy[a] (%R)	MDL[b,f] (ng)	FTIRS MDL[b] (ppmv)	PRQL (ppmv)	Completeness (%)
Benzene	71-43-2	≤25	70-130	10	5	10	90
Bromoform	75-25-2	≤25	70-130	10	5	10	90
Carbon tetrachloride	56-23-5	≤25	70-130	10	5	10	90
Chlorobenzene	108-90-7	≤25	70-130	10	5	10	90
Chloroform	67-66-3	≤25	70-130	10	5	10	90
1,1-Dichloroethane	75-34-3	≤25	70-130	10	5	10	90
1,2-Dichloroethane	107-06-2	≤25	70-130	10	5	10	90
1,1-Dichloroethylene	75-35-4	≤25	70-130	10	5	10	90
cis-1,2-Dichloroethylene	156-59-2	≤25	70-130	10	5	10	90
trans-1,2-Dichloroethylene	156-60-5	≤25	70-130	10	5	10	90
Ethyl benzene [f]	100-41-4	≤25	70-130	10	5	10	90
Ethyl ether	60-29-7	≤25	70-130	10	10	10	90
Formaldehyde[c]	50-00-0	≤25	70-130	10	5	10	90
Hydrazine[d]	302-01-2	≤25	70-130	10	10	10	90
Methylene chloride	75-09-2	≤25	70-130	10	10	10	90
1,1,2,2-Tetrachloroethane	79-34-5	≤25	70-130	10	5	10	90
Tetrachloroethylene	127-18-4	≤25	70-130	10	5	10	90
Toluene	108-88-3	≤25	70-130	10	5	10	90
1,1,1-Trichloroethane	71-55-6	≤25	70-130	10	5	10	90
Trichloroethylene	79-01-6	≤25	70-130	10	5	10	90
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	≤25	70-130	10	5	10	90
m-Xylene[e]	108-38-3	≤25	70-130	10	5	10	90
o-Xylene	95-47-6	≤25	70-130	10	5	10	90
p-Xylene[e]	106-42-3	≤25	70-130	10	5	10	90
Acetone	67-64-1	≤25	70-130	150	50	100	90
Butanol	71-36-3	≤25	70-130	150	50	100	90
Methanol	67-56-1	≤25	70-130	150	50	100	90
Methyl ethyl ketone	78-93-3	≤25	70-130	150	50	100	90
Methyl isobutyl ketone	108-10-1	≤25	70-130	150	50	100	90

[a] Criteria apply to PRQL concentrations.
[b] Values based on delivering 10 mL to the analytical system.
[c] Required only for homogenous solids and soil/gravel waste from ~~Los Alamos National Laboratory and~~ Savannah River Site.
[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.
[e] These xylene isomers cannot be resolved by GC/MS.
[f] The ethyl benzene PRQL for FTIRS is 20 ppm

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
MDL = Method detection limit (maximum permissible value), for GC/MS and GC/FID; total number of nanograms delivered to the analytical system per sample (nanograms); for FTIRS based on 1 m sample cell
PRQL = Program required quantitation limit (parts per million/volume basis)

TABLE B3-4
VOLATILE ORGANIC COMPOUNDS TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Compound	CAS Number	Precision[a] (%RSD or RPD)	Accuracy[a] (%R)	MDL[b] (mg/kg)	PRQL[b] (mg/kg)	Completeness (%)
Benzene	71-43-2	≤45	37-151	1	10	90
Bromoform	75-25-2	≤47	45-169	1	10	90
Carbon disulfide	75-15-0	≤50	60-150	1	10	90
Carbon tetrachloride	56-23-5	≤30	70-140	1	10	90
Chlorobenzene	108-90-7	≤38	37-160	1	10	90
Chloroform	67-66-3	≤44	51-138	1	10	90
1,4-Dichlorobenzene[c]	106-46-7	≤60	18-190	1	10	90
ortho-Dichlorobenzene[c]	95-50-1	≤60	18-190	1	10	90
1,2-Dichloroethane	107-06-2	≤42	49-155	1	10	90
1,1-Dichloroethylene	75-35-4	≤250	D-234[d]	1	10	90
trans-1,2-Dichloroethylene	156-60-5	≤50	60-150	1	10	90
Ethyl benzene	100-41-4	≤43	37-162	1	10	90
Methylene chloride	75-09-2	≤50	D-221[d]	1	10	90
1,1,2,2-Tetrachloroethane	79-34-5	≤55	46-157	1	10	90
Tetrachloroethylene	127-18-4	≤29	64-148	1	10	90
Toluene	108-88-3	≤29	47-150	1	10	90
1,1,1-Trichloroethane	71-55-6	≤33	52-162	1	10	90
1,1,2-Trichloroethane	79-00-5	≤38	52-150	1	10	90
Trichloroethylene	79-01-6	≤36	71-157	1	10	90
Trichlorofluoromethane	75-69-4	≤110	17-181	1	10	90
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	≤50	60-150	1	10	90
Vinyl chloride	75-01-4	≤200	D-251[d]	1	4	90
m-xylene	108-38-3	≤50	60-150	1	10	90
o-xylene	95-47-6	≤50	60-150	1	10	90
p-xylene	106-42-3	≤50	60-150	1	10	90
Acetone	67-64-1	≤50	60-150	10[e]	100	90
Butanol	71-36-3	≤50	60-150	10[e]	100	90
Ethyl ether	60-29-7	≤50	60-150	10[e]	100	90
Formaldehyde[f]	50-00-0	≤50	60-150	10[e]	100	90
Hydrazine[g]	302-01-2	≤50	60-150	10[e]	100	90
Isobutanol	78-83-1	≤50	60-150	10[e]	100	90
Methanol	67-56-1	≤50	60-150	10[e]	100	90
Methyl ethyl ketone	78-93-3	≤50	60-150	10[e]	100	90
Pyridine[c]	110-86-1	≤50	60-150	10[e]	100	90

[a] Applies to laboratory control samples and laboratory matrix spikes. If a solid laboratory control sample material which has established statistical control limits is used, then the established control limits for that material should be used for accuracy requirements.
[b] TCLP MDL and PRQL values are reported in units of mg/l and limits are reduced by a factor of 20.
[c] Can also be analyzed as a semi-volatile organic compound. If analyzed as a semi-volatile compound, the QAOs of Table B3-6 apply.
[d] Detected; result must be greater than zero.
[e] Estimate, to be determined.
[f] Required only for homogenous solids and soil/gravel waste from ~~Los Alamos National Laboratory and~~ Savannah River Site.
[g] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
MDL = Method detection limit (maximum permissible value) (milligrams per kilogram)
PRQL = Program required quantitation limit; calculated from the toxicity characteristic level for benzene assuming a 0.9 oz (25-gram [g]) sample, 0.1 gal (0.5 liter [L]) of extraction fluid, and 100 percent analyte extraction (milligrams per kilogram)

TABLE B3-6
SEMI-VOLATILE ORGANIC COMPOUND TARGET ANALYTE LIST AND QUALITY ASSURANCE OBJECTIVES

Compound	CAS Number	Precision[a] (%RSD or RPD)	Accuracy[a] (%R)	MDL[b] (mg/kg)	PRQL[b] (mg/kg)	Completeness (%)
Cresols	1319-77-3	≤50	25-115	5	40	90
1,4-Dichlorobenzene[bc]	106-46-7	≤86	20-124	5	40	90
ortho-Dichlorobenzene[c]	95-50-1	≤64	32-129	5	40	90
2,4-Dinitrophenol	51-28-5	≤119	D-172[ed]	5	40	90
2,4-Dinitrotoluene	121-14-2	≤46	39-139	0.3	2.6	90
Hexachlorobenzene	118-74-1	≤319	D-152[ed]	0.3	2.6	90
Hexachloroethane	67-72-1	≤44	40-113	5	40	90
Nitrobenzene	98-95-3	≤72	35-180	5	40	90
~~Polychlorinated Biphenyls~~				~~5~~	~~40~~	~~90~~
~~Aroclor 1016[d]~~	~~12674-11-2~~	~~≤33~~	~~50-114~~	~~5~~	~~40~~	~~90~~
~~Aroclor 1221[d]~~	~~11104-28-2~~	~~≤110~~	~~15-178~~	~~5~~	~~40~~	~~90~~
~~Aroclor 1232[d]~~	~~11141-16-5~~	~~≤128~~	~~10-215~~	~~5~~	~~40~~	~~90~~
~~Aroclor 1242[d]~~	~~53469-21-9~~	~~≤49~~	~~39-150~~	~~5~~	~~40~~	~~90~~
~~Aroclor 1248[d]~~	~~12672-29-6~~	~~≤55~~	~~38-158~~	~~5~~	~~40~~	~~90~~
~~Aroclor 1254[d]~~	~~11097-69-1~~	~~≤62~~	~~29-131~~	~~5~~	~~40~~	~~90~~
~~Aroclor 1260[d]~~	~~11096-82-5~~	~~≤56~~	~~8-127~~	~~5~~	~~40~~	~~90~~
Pentachlorophenol	87-86-5	≤128	14-176	5	40	90
Pyridine[c]	110-86-1	≤50	25-115	5	40	90

CAS = Chemical Abstract Service
%RSD = Percent relative standard deviation
RPD = Relative percent difference
%R = Percent recovery
MDL = Method detection limit (maximum permissible value) (milligrams per kilogram)
PRQL = Program required quantitation limit; calculated from the toxicity characteristic level for nitrobenzene assuming a 100-gram (g) sample, 0.5 gal (2 liter [L]) of extraction fluid, and 100 percent analyte extraction (milligrams per kilograms)

[a] Applies to laboratory control samples and laboratory matrix spikes. If a solid laboratory control sample material which has established statistical control limits is used, then the established control limits for that material should be used for accuracy requirements.
[b] TCLP MDL and PRQL values are reported in units of mg/l and limits are reduced by a factor of 20.
[c] Can also be analyzed as a volatile organic compound
[d] ~~Required only for waste matrix code S3220 (organic sludges)~~
[e] Detected; result must be greater than zero

	WAP Requirement[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
12a	• wastes with polychlorinated biphenyls (PCBs) ~~concentrations equal to or greater than 50 parts per million~~ not authorized under an EPA PCB waste disposal authorization • wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003) • RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater) • any waste container that does not have VOC concentration values reported for the headspace • any waste container which has not undergone either radiographic or visual examination • any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d) (Section B-1c)					
13	Are procedures in place to ensure that the generator/storage site uses radiography, visual examination, headspace gas analysis and, as applicable, solids sampling, to confirm the absence of the unacceptable waste listed above? (Section B-3)					
	WASTE ACCEPTANCE CONTROL					
14	Are procedures in place to ensure that the generator/storage site uses a Waste Stream Profile Form (WSPF) which includes, at a minimum, the information indicated on the attached WSPF found in Figure B-1? A Waste Stream Profile Form need not be submitted for subsequent waste stream lots unless warranted by the characterization information. (Sections B-1a, B-1d)					
15	Are procedures in place to ensure that WSPFs are provided to WIPP and NMED for each waste stream prior to acceptance for disposal at the WIPP? (Section B-1d)					
16	Are procedures in place to ensure that additional WSPFs are provided to WIPP and NMED for waste streams or portions of waste streams that are reclassified based upon waste characterization information? (Section B-1d)					

	WAP Requirement[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
22	Are procedures in place to ensure that compounds not on the list of target analytes are reported as tentatively identified compounds (TIC) according to SW-846 TIC identification guidance and that the TIC will be added to the target headspace gas analyte list if it appears in the 20 NMAC 4.1.200 (incorporating 40 CFR Part 261) Appendix VIII list and if they are reported in 25% of the waste containers sampled from a given waste stream? (Section B-3a(1))					
23	Are procedures in place to ensure that a randomly selected set of samples will be collected through core sampling or other EPA approved representative methods from the population of waste containers for homogeneous and soil/gravel waste streams? Are procedures in place that a sufficient number of samples are collected to evaluate the toxicity characteristic of a waste stream at a 90 percent Upper Confidence limit as specified in Attachment B2? (Section B-3a(2))					
24	Are procedures in place to ensure that total analyses or TCLP of ~~PCBs,~~ VOCs, SVOCs, and Metals are performed on all core samples to determine if the waste exhibits a toxicity characteristic? (Section B-3a(2))					
25	Are procedures in place to ensure that Acceptable Knowledge is used in waste characterization activities to delineate TRU waste streams, to assess whether TRU debris waste exhibits a toxicity characteristic, and to assess whether TRU wastes are listed? (Section B-3b)					
26	Are procedures in place to ensure that radiography and/or visual examination are used to: • Examine every waste container to determine the physical form • Identify liquids and containerized gases • Verify the physical form matches the waste stream description (Section B-3c)					

	WAP Requirement[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N(Why?)	Item Reviewed	Adequate? Y/N	
88	Are procedures in place to ensure that SVOC~~,~~ and Metals~~, and PCB~~ sample location(s) on the core are selected randomly along the long axis of the core and that the sample locations are documented, or that samples are collected at the same locations as VOC samples? Samples may be collected by splitting or compositing the representative subsection of the core. The representative subsections are chosen by randomly selecting a location along the portion of the core from which the sample was taken. (Section B1-2a(2))					
89	Are procedures in place to ensure that the SVOC~~,~~ and Metals~~, and PCB~~ sample s are collected using equipment constructed of materials unlikely to affect the composition or concentrations of the samples? (Section B1-2a(2))					
90	Are procedures in place to ensure that samples collected by means other than coring are collected as soon as possible and that spatial and temporal homogeneity is evaluated to determine if composite or grab samples are appropriate? (Section B1-2a(2))					

	WAP Requirement[1]	Procedure Documented		Example of Implementation/ Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N(Why?)	Item Reviewed	Adequate? Y/N	
91	Are procedures in place to ensure sample volumes, preservatives, containers, and holding times meet the following specifications: **Minimum sample quantity** VOC 15 grams SVOC 50 grams ~~PCB 50 grams~~ Metals 10 grams (smaller sample sizes may be used if method PRQL requirements are met) **Preservative** VOC Cool to 4C SVOC Cool to 4C ~~PCB Cool to 4C~~ Metals Cool to 4C **Sample Container** VOC 40 mL VOA glass vial (or other appropriate containers) with septum cap SVOC 250 mL amber glass jar with Teflon© lined cap ~~PCB 250 mL amber glass jar with Teflon© lined cap~~ Metals 250 mL polyethylene or polypropylene bottle **Holding Time from Date of Collection** VOC 14 days prep/40 days analyze SVOC 14 days prep/40 days analyze ~~PCB 14 days prep/40 days analyze~~ Metals 180 days/ 28 days Hg (Table B1-4)					
	QUALITY CONTROL SAMPLE COLLECTION					
92	Are procedures in place to ensure that sampling precision will be determined through the collection of co-located core field duplicate samples for core samples and through the collection of co-located samples for samples collected using alternate methods at the frequency of once per 20 sample batch collected over 14 days? Are procedures in place to ensure that acceptance criteria for sample precision is established through an F-Test until 20 - 30 co-located pairs have analyzed to establish a control chart? (Section B1-2b(1))					

- The UPS maintains all monitoring systems and alarms in waste handling areas so that fires or pressure loss will be detected and an appropriate response initiated
- Generators are brought on line within 30 minutes, at which time hoisting can be initiated so that personnel do not have to stay underground for extended lengths of time.
- Decisions to evacuate underground personnel will be made in accordance with the requirements of the Mine Safety and Health Administration (**MSHA**)
- The waste hoist brakes set automatically so that loads do not fall
- Cranes retain their loads so that spills do not occur from dropped containers
- Communication systems are maintained
- The emergency operations center is powered if it is needed.

The CMS is a computerized system that collects, records, and displays data for all critical facility systems. The system is designed to provide a centralized, integrated location for collecting, monitoring, and storing facility parameters and is informed from signals provided by the seismic, meteorological, radiological effluent, and fire detection and alarm systems. Additionally, the CMS monitors heating, ventilation, air conditioning and electrical system status. Certain control functions of the underground ventilation fans, major facility electrical systems, and the backup diesel generators can be performed by the CMS from the CMR. The CMS can be set to alarm upon failure of the equipment monitored.

The CMS components of the WHB Unit and the Support Building are powered from the central UPS. The UPS features automatic switching without a loss of power from primary power to alternate power to battery backup power. The components located throughout the facility are powered by various electrical switchboards, with UPS battery backup.

The major components of the system are interconnected by means of a ~~dual, redundant data highway~~ network. The ~~data highway~~ network is the communications medium for the CMS and consists of ~~dual coaxial~~ network cables routed throughout the facility. The ~~system can function on only one of the data highways~~ network is designed such that no single point failure will cause failure of the entire network. Parameters or status are monitored by Local Processing Units strategically located throughout the surface and underground facility.

In addition, a number of automatic checks are performed on the internal processes associated with system components and ~~data highway~~ network communications. If any fault is detected, the system has the capability to remove a component from the ~~data highway~~ network and alert the CMR Operator (**CMRO**) of the fault. The status of the ~~data highways~~ network is continuously monitored by the CMRO 24 hours per day, seven days per week. If a fault occurs, the CMRO initiates an AR within the Work Control system to correct the problem.

Scoops, shovels, jugs, and pails as well as drum transfer pumps for chemical and petroleum transfer are utilized as needed in response to all levels of incidents.

G. Vapor Suppression refers to the reduction or elimination of vapors emanating from a spilled or released material through the most efficient method or application of specially designed agents such as an aqueous foam blanket.

2. Chemical Methods of Mitigation

A. Neutralization is the process of applying acids or bases to a spill to form a neutral salt. The application of solids for neutralizing can often result in confinement of the spilled material. This would include using the neutralizing adsorbents.

B. Solidification is the process whereby a hazardous liquid is added to material such as an absorbent so that a solid material results.

The established procedures are based upon the incident level and a graded approach for nonradioactive or CH waste emergencies and initiated to:

1. Minimize contamination or contact (through PPE, etc.)
2. Limit migration of contaminants
3. Properly dispose of contaminated materials

Fire

The incident level emergency response identified in Section F-3 includes fire/explosion potential. WIPP fire response includes incipient, exterior structure fires, and internal structure fires. The RCRA Emergency Coordinator can implement the Memoranda of Understanding (**MOU**) for additional support.

The first option in mine fire response will be to apply mechanical methods to stop fires (e.g., cut electrical power). The last option in mine fire response will be to reconfigure ventilation using control doors associated with the underground ventilation system. The following actions are implemented in the event of a fire:

1. All emergency response personnel at an incident will wear appropriate PPE.

2. Only fire extinguishing materials that are compatible with the materials involved in the fire will be used to extinguish fires. Compatibility with materials involved in a fire are determined by pre-fire plans, Emergency Response Guide Book (DOT, 1993), DOT labeling, and site-specific knowledge of the emergency response personnel. Water and dry chemical materials have been determined to be compatible with all components of the TRU mixed waste. Pre-fire plans for the WHB are included in Figures F-10 and F-11.

Fires in areas of the WHB Unit should not propagate, due to limited amount of combustibles, and the concrete and steel construction of the structures. Administrative controls, such as landlord inspections and EST/FPT inspections, help to insure good housekeeping is maintained. Combustible material and TRU mixed waste will be isolated, if possible. Firewater drain trenches collect the water and channel it into a sump. In areas not adjacent to the trenches, portable absorbent dikes (pigs) will be used to retain as much as possible, until it can be transferred to containers or sampled and analyzed for hazardous constituents.

~~In a mine fire, if reconfiguring ventilation is necessary, a set of three booster fans will allow selective reversal of airflow in the mining area, the Air Intake Shaft and its associated station, and the Salt Handling Shaft and its associated station. In these modes, airflow can be reversed by opening and closing certain ventilation doors and air regulators and by operating the underground booster fans (in either the forward or the reverse direction). These fans will normally be turned off and will be isolated, with air bypassing the fans and flowing through the air lock. The surface fans will be stopped before attempting any underground air reversals. These modes of ventilation will only be implemented under manual control for off-normal conditions (such as a fire).~~

3. If the fire spreads or increases in intensity, personnel will be directed to evacuate.

4. The RCRA Emergency Coordinator will remain in contact with responding personnel to advise them of the known hazards.

5. In order to ensure that storm drains and/or sewers do not receive potentially hazardous runoff, dikes will be built around storm drains to control discharge as needed. Collected waste will be sampled and analyzed for hazardous constituents, before being discharged to evaporation ponds. There are two ponds south of the security fence, opposite the WHB Unit, that will collect drainage from the parking area. The rest of the site, inside the security fence, drains to the large pond to the west. Samples will be taken from these ponds, after the emergency has been abated, to determine any cleanup requirements. NMED will approve any procedures associated with the sampling and analysis of the ponds.

6. The RCRA Emergency Coordinator maintains overall control of the emergency and may accept and evaluate the advice of WIPP facility personnel and emergency response organization members, but retains overall responsibility.

7. The RCRA Emergency Coordinator will be in overall control of WIPP facility emergency response efforts until the emergency is terminated.

8. Materials involved in a fire can be identified in the following ways:

   - According to Section F-4b.

TABLE F-2
RESOURCE CONSERVATION AND RECOVERY ACT EMERGENCY COORDINATORS

Name	Address*	Office Phone	Home Phone*
G. A. (Gerry) Burns (primary)[1]		234-8276 or 234-8635	
R. A. (Richard) Marshall (primary)[1]		234-8276 or 234-8695	
R. C. (Russ) Stroble (primary)[1]		234-8276 or 234-8554	
M. L. (Tex) Winans (primary)[1]		234-8276 or 234-8273	
J.E. (Joseph) Bealler[2]		234-8276 or 234-8916	
M.G. (Mike) Proctor[2]		234-8457	
G. L. (Gary) Kessler[2]		234-8326	
A. E. (Alvy) Williams[2]		234-8216 or 234-8276	
P.J. (Paul) Paneral[2]		234-8498	
M.L. (Mark) Long[2]		234-8170	

*NOTE: Personal information (home addresses and phone numbers) has been removed from information copies of this application.

[1] The on-duty Facility Shift Manager is the primary RCRA Emergency Coordinator pursuant to 20.4.1.500 NMAC (incorporating 40 CFR §264.52), and is designated to serve as the RCRA Emergency Coordinator.

[2] The on-duty Facility Operations Engineer is the alternate RCRA Emergency Coordinator and is available as needed.

TABLE F-2
RESOURCE CONSERVATION AND RECOVERY ACT EMERGENCY COORDINATORS

Name	Address	Office Phone	Home Phone
G. A. (Gerry) Burns (primary)[1]	2516 North Crown Circle, Carlsbad	234-8276 or 234-8635	887-7133
R. A. (Richard) Marshall (primary)[1]	8414 Molinar Road, Carlsbad	234-8276 or 234-8695	885-2220
R. C. (Russ) Stroble (primary)[1]	3304 Falling Star, Carlsbad	234-8554	885-0220
M. L. (Tex) Winans (primary)[1]	1304 North Country Club Circle, Carlsbad	234-8276 or 234-8273	885-0437
M.G. (Mike) Proctor[2]	1102 North. Country Club Circle, Carlsbad	234-8457	885-1470
J.E. (Joseph) Bealler[2]	1411 South Country Club Circle, Carlsbad	234-8619	628-0729
G. L. (Gary) Kessler[2]	1313 East Wood Drive, Carlsbad	234-8326	885-9214
A. E. (Alvy) Williams[2]	113 Coleman Road, Carlsbad	234-8216 or 234-8276	885-4811
P.J. (Paul) Paneral[2]	218 Parker, Carlsbad	234-8498	877-2352
M.L. (Mark) Long[2]	1013 North Guadalupe, Carlsbad	234-8170	885-6677

[1] The on-duty Facility Shift Manager is the primary RCRA Emergency Coordinator pursuant to 20.4.1.500 NMAC (incorporating 40 CFR §264.52) and is designated to serve as the RCRA Emergency Coordinator.

[2] The on-duty Facility Operations Engineer is the alternate RCRA Emergency Coordinator and is available as needed.

Overall, there are ~~seven~~ six possible modes of exhaust fan operation:

- 2 main fans in operation
- 1 main fan in operation
- 1 filtration fan in filtered operation
- ~~Reversal~~
- 1 filtration fan in unfiltered operation
- 2 filtration fans in unfiltered operation
- 1 main and 1 filtration fan (unfiltered) in operation

Under some circumstances (such as power outages and maintenance activities, etc.), all mine ventilation may be discontinued for short periods of time.

In the normal mode, two main surface exhaust fans, located near the Exhaust Shaft, will provide continuous ventilation of the underground areas. All underground flows join at the bottom of the Exhaust Shaft before discharge to the atmosphere.

Outside air will be supplied to the mining areas and the waste disposal areas through the Air Intake Shaft, the Salt Handling Shaft, and access entries. A small quantity of outside air will flow down the Waste Shaft to ventilate the Waste Shaft station. The ventilation system is designed to operate with the Air Intake Shaft as the primary source of fresh air. Under these circumstances, sufficient air will be available to simultaneously conduct all underground operations (e.g., waste handling, mining, experimentation, and support). Ventilation may be supplied by operating one main exhaust fan, or one or two filtration exhaust fans, or an combination of the three.

If the nominal flow of 425,000 cfm (12,028 m^3/min) is not available (i.e., only one of the main ventilation fans is available) underground operations may proceed, but the number of activities that can be performed in parallel may be limited depending on the quantity of air available. Ventilation may be supplied by operating one or two of the filtration exhaust fans. To accomplish this, the isolation dampers will be opened, which will permit air to flow from the main exhaust duct to the filter outlet plenum. The filtration fans may also be operated to bypass the HEPA plenum. The isolation dampers of the filtration exhaust fan(s) to be employed will be opened, and the selected fan(s) will be switched on. In this mode, underground operations will be limited, because filtration exhaust fans cannot provide sufficient airflow to support the use of diesel equipment.

In the filtration mode, the exhaust air will pass through two identical filter assemblies, with only one of the three Exhaust Filter Building filtration fans operating (all other fans are stopped). This system provides a means for removing the airborne particulates that may contain radioactive and hazardous waste contaminants in the reduced exhaust flow before they are discharged through the exhaust stack to the atmosphere. The filtration mode is activated manually or automatically if the radiation monitoring system detects abnormally high concentrations of airborne radioactive particulates (an alarm is received from the continuous air monitor in the exhaust drift of the active waste panel) or a waste handling incident with the potential for a waste container breach is observed. The filtration mode is not initiated by the release of gases such as VOCs.

II.C.3.b. Pyrophoric materials - non-radionuclide pyrophoric materials, such as elemental potassium, are not acceptable at WIPP.

II.C.3.c. Non-mixed hazardous wastes - hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes) are not acceptable at WIPP.

II.C.3.d. Chemical incompatibility - wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes are not acceptable at WIPP.

II.C.3.e. Explosives and compressed gases - wastes containing explosives or compressed gases are not acceptable at WIPP.

II.C.3.f. PCB waste ~~concentrations~~ - wastes with polychlorinated biphenyls (**PCBs**) ~~concentrations equal to or greater than 50 parts per million~~ not authorized under an EPA PCB waste disposal authorization are not acceptable at WIPP.

II.C.3.g. Ignitable, corrosive, and reactive wastes - wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003) are not acceptable at WIPP.

II.C.3.h. Remote-handled transuranic waste - remote-handled (**RH**) TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater) is not acceptable at WIPP.

II.C.3.i. Headspace gas sampling and analysis - any waste container that does not have VOC concentration values reported for the headspace is not acceptable at WIPP.

II.C.3.j. Radiographic / visual examination - any waste container which has not undergone either radiographic or visual examination is not acceptable at WIPP.

II.C.3.k. Waste stream profiles - any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (Attachment B, Figure B-1) is not acceptable at WIPP.

Table II.C.4 - Permitted TRU Mixed Wastes		
EPA Hazardous Waste Code	**Hazardous Waste[1]**	**Chemical Abstract Number**
D032	Hexachlorobenzene	118-74-1
D033	Hexachlorobutadiene	87-68-3
D034	Hexachloroethane	67-72-1
D035	Methyl ethyl ketone	78-93-3
D036	Nitrobenzene	98-95-3
D037	Pentachlorophenol	87-86-5
D038	Pyridine	110-86-1
D039	Tetrachloroethylene	127-18-4
D040	Trichloroethylene	79-01-6
D043	Vinyl chloride	75-01-4
P015	Beryllium powder (H)	7440-41-7
P030	Cyanides (soluble cyanide salts), not otherwise specified (H)	N/A
P098	Potassium Cyanide (H)	151-50-8
P099	Potassium Silver Cyanide (H)	506-61-6
P106	Sodium Cyanide (H)	143-33-9
P120	Vanadium Pentoxide (H)	1314-62-1
U002	Acetone (I)	67-64-1
U003	Acetonitrile (I,T)	75-05-8
U019	Benzene (I,T)	71-43-2
U037	Chlorobenzene (T)	108-90-7
U043	Vinyl Chloride (T)	75-01-4
U044	Chloroform (T)	67-66-3
U052	Cresol (T)	1319-77-3
U070	1,2-Dichlorobenzene (T)	95-50-1
U072	1,4-Dichlorobenzene (T)	106-46-7
U078	1,1-Dichloroethylene (T)	75-35-4
U079	1,2-Dichloroethylene (T)	156-60-5
U103	Dimethyl Sulfate (T)	77-78-1
U105	2,4-Dinitrotoluene (T)	121-14-2
U108	1,4-Dioxane (T)	123-91-1
U122	Formaldehyde (T)	50-00-0
U133	Hydrazine (R,T)	302-01-2
U134	Hydrofluoric Acid (C,T)	7664-39-3
U151	Mercury (T)	7439-97-6
U154	Methanol (I)	67-56-1
U159	Methyl Ethyl Ketone (I,T)	78-93-3